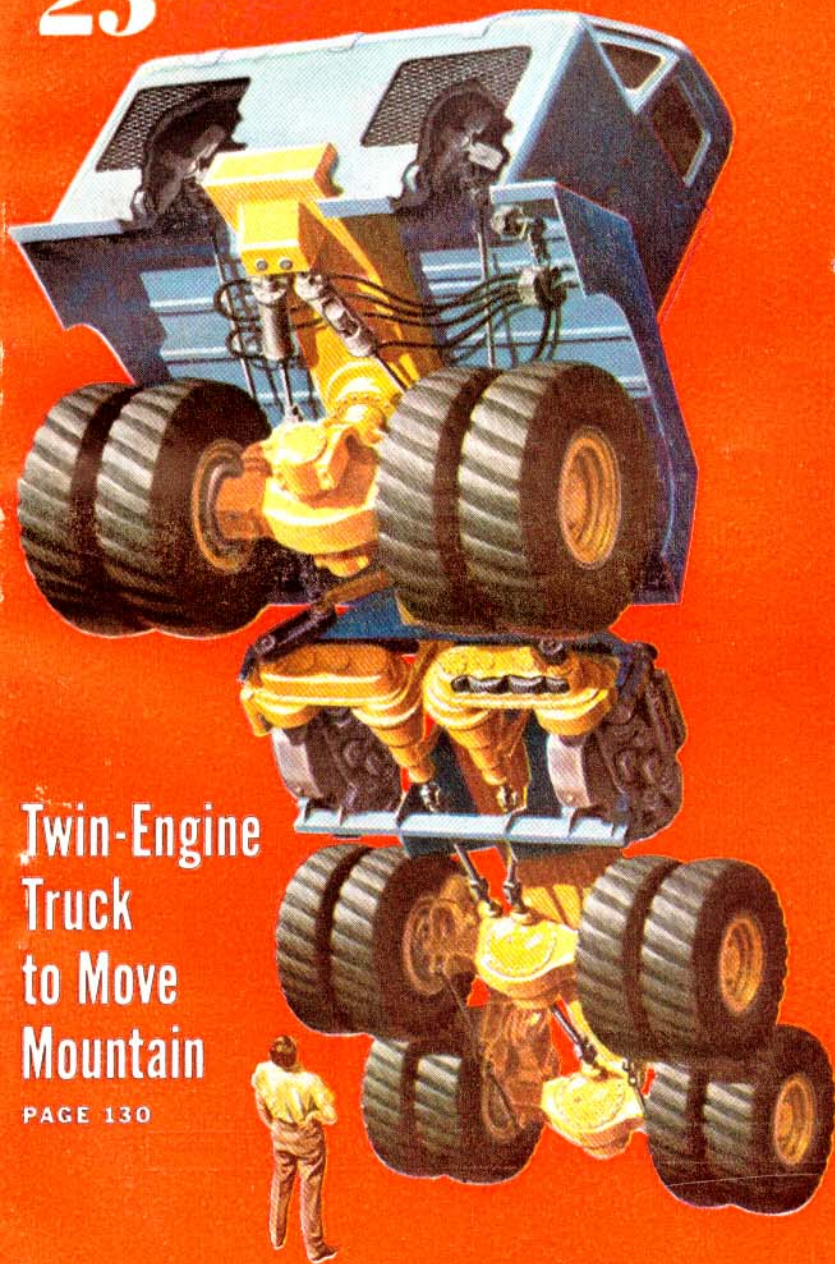


POPULAR SCIENCE

MONTHLY

MECHANICS - AUTOS - HOMEBUILDING

25¢ August

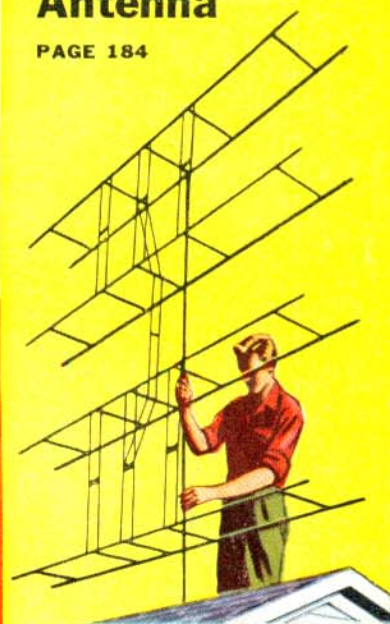


Twin-Engine
Truck
to Move
Mountain

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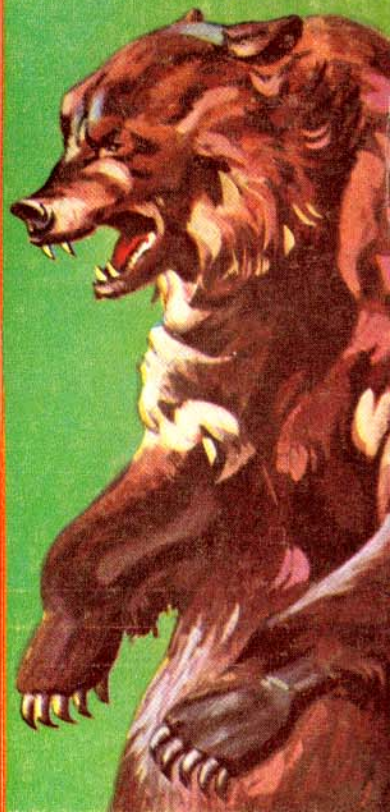
Choosing Your
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How Cave Men
Conquered the
Giant Bears

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The Model Garageman swaps his fishing rod for a

Gus Peps Up a Tired Truck

By Martin Bunn

GUS WILSON was standing in the door of the Model Garage on a late August afternoon, wondering if he could close a mite early and get in a bit of fishing at the lake, when Glen Showalter drove up in his rattletrap International truck.

Beside Glen sat pretty Enid Bishop, daughter of Sam



screwdriver to pry an obstacle from the path of true love.

Bishop, who ran a sizable grain farm a few miles out of town. Gus had known these youngsters from their beanie-cap days. He smiled up at them now with a broad grin, for he knew that Glen had been courting Enid for some time.

"You're looking prettier than ever, Enid," Gus greeted the girl. "Howdy, Glen. You got trouble?"

"Trouble's no word for it." Glen's face was lined with worry. "I'm supposed to be hauling grain away from Mr. Bishop's combines, and this old tub won't pull the hat off your head. Been fighting it all week—ever since harvest began."

The Kid Doesn't Have a Nickel

Gus was on the point of asking Glen why he hadn't brought the truck in before, but he checked the words. Everybody in town knew the kid didn't have a nickel to his name. Glen had been reared by a widowed father, far up in the hills, on little more than a milk cow, a small garden, a pair of ragged overalls and a dirty shirt. The town had thought that the son would be like the

father—honest enough, but content to neither sow nor reap.

Enid Bishop had changed that. Now, Glen was making a desperate gamble to get into business. He had bought the old International for a few dollars down, worked half the summer to get it into shape to haul grain by harvest time. Kind-hearted farmers had seen fit to give the kid a break. If the truck held together through harvest, Glen could earn enough to pay it off, trade it in on a better one, and gradually work his way into a year-round trucking business.

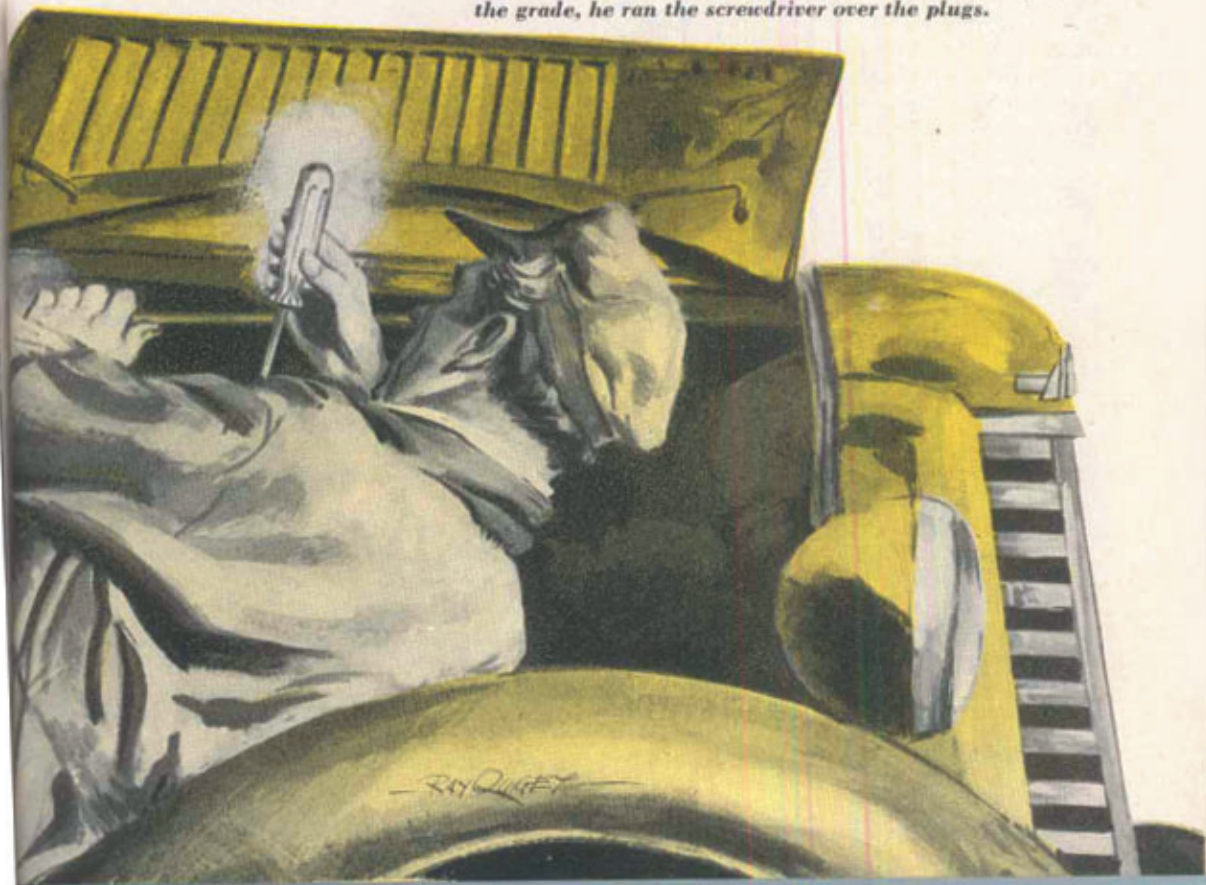
Dreams Are Riding on Battered Truck

If the truck didn't hold together? Gus looked into the eyes of Enid Bishop and had the answer. Two kids in love would find their dreams shattered. He cocked his ear to the motor, which was idling nicely.

"Sounds all right to me, Glen," he said.

"That's the tough part of it," Glen exploded. "I ground the valves, took up the bearings, installed new rings, and tuned her the best I knew how. She's all right on the idle, but misses to beat Harry when you

Gus rode out on the fender. When they revved up for the grade, he ran the screwdriver over the plugs.



rev her up. No good on the pull. And she's got to pull tomorrow, or I don't have a job."

"Don't worry about it," Gus reassured him. "We'll make her hit, or know the reason why."

"I won't be able to pay you until—" Glen began.

"Forget it," Gus cut him short. "Your credit is good here."

He was rewarded by the look Enid gave him as he lifted the hood. All this rig needs is a set of decent plugs, Gus told himself, as he removed a weird assortment of old ones, put them in the sand-blasting machine, and tested them under compression. To his surprise, none of them was in bad shape.

While the plugs were out, Gus got his compression gauge and had Stan Hicks, his helper, turn the motor over while he ran a test on each cylinder. He found that Numbers 3 and 4 were about 10 pounds weaker than the rest. That wasn't unusual—especially on an old truck that had just had new rings installed. Some of them probably weren't fully seated yet. Even so, all the cylinders had enough compression so they shouldn't miss.

Gus made a routine check on coil, condenser, wiring and points. Everything seemed okay. Mentally bidding his fishing trip goodbye, he climbed up under the wheel.

Gus Suggests a Ride

"Let's take a ride," he said. "We'll head her onto the steep hill just out of town. If she's going to miss, she'll do it there, even if she isn't under load."

"She'll miss, all right," Glen said grimly, as he got in beside Enid.

The old International backed out of the garage and moved down the street, purring like a kitten.

They rolled across the flat, and Gus picked up speed for the hill ahead. As the

motor revved up it roughened and developed a distinct miss. Two cylinders, he told himself, as sure as you're born. He shifted, hit the top of the grade, slowed down and put her in neutral.

"You drive, Glen," he said. "I'll ride the fender a bit."

Gus lifted the hood, a neon-tube screwdriver in his hand. When they revved up for the next grade, he ran the screwdriver along the tops of the plugs. Every one of them flashed its gaudy red fire through the transparent handle. Yet cylinders 3 and 4 were missing. Pull or no pull, he knew, now, this wasn't ignition trouble.

Gus got back inside the truck. "Let's take her back to the shop," he said.

As they dropped onto level road, he turned to Glen again. "Now, throttle her down. As slow as she'll take it."

The truck idled perfectly. Gus reached his foot across to put gentle pressure on the brake pedal. Not until the speedometer was wavering at the 10-mile mark did the old motor begin to buck. No engine could perk along like that with bad valves, and compression had tested out well enough.

"When you did your overhauling job," he asked Glen, "did you

clean out the valve guides, and test the valve springs for strength?"

"Cleaned the valve guides with a wire brush," Glen nodded. "I didn't have the springs tested, but they seemed all right."

"Let's see," Gus puzzled out loud. "You've had this trouble ever since you took the motor down?"

"It didn't miss at first, Mr. Wilson," Enid put in. "Remember, Glen, right after you got it done we drove up on—" She cut herself off and blushed.

Yeah, Gus thought. They went up on Lovers' Hill, where they could look out over the lake.



IN 1901, the Automobile Forecarriage—an engine attached to a pair of wheels—was introduced to the motoring public. By simply removing your front buggy wheels and installing the Forecarriage, you could switch from oats to gasoline in a jiffy.

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Gus Peps Up a Tired Truck

[Continued from page 160]

"I didn't have any trouble," Glen was saying, "until I started to work on the harvest last week. That is, except for the broken butterfly shaft."

"Broken butterfly shaft!" Gus was all ears now. "Those shafts wear, but they don't often break. Something must have jammed it."

"The throttle stuck at slow speed," Glen explained. "So I rammed my foot down hard on the accelerator and the motor stopped. It took me a while to find out that the cross shaft in the carburetor, where the butterfly valve is attached, had let go. The truck quit almost in front of the Danesville junk yard, so I had them put in a used shaft. That fixed things up as good as new."

Gus Fumbles Through Tool Kit

When they got back to the Model Garage, Gus got down and wheeled over his tool kit. Then he began fumbling through it, as though he was looking for something he couldn't find.

"Funny," he said. "I need a real small screwdriver. And I don't seem to have one here."

Working on the grease rack, Stan Hicks cocked a quizzical ear. What was the old fox up to? Gus had all kinds of screwdrivers in the kit drawer.

Glen got his tools out of the truck and offered Gus an eight-inch driver.

"This," he said, "is the smallest one I've got."

"Then how did you manage to get out those two tiny screws that held the butterfly to the broken cross shaft?"

Glen looked puzzled.

"Why, I didn't have to, Mr. Wilson. That butterfly valve was loose in there. I just lifted it out."

Gus kicked a trough under the radiator, and slid in beside it to turn the drain cock. When he had run all of the water off, he removed the engine head and called Stan Hicks over.

Stan Mans the Crank

"Turn her over slow with the crank," he told his helper.

As each intake valve came up, Gus thrust a tiny inspection mirror underneath it, and flashed a pencil light on the mirror, so he could see the reflection of the valve facings.

[Continued on page 220]

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Gus Peps Up a Tired Truck

[Continued from page 218]

On cylinders 3 and 4 he found barely visible marks on the newly ground seats. As he turned to face Glen and Enid there was a smile of complete satisfaction on his rugged features.

"Your troubles are over, kids," he told them. "The two screws that held the old butterfly valve to the carburetor shaft worked loose. That let the butterfly valve cock in the carburetor throat, and jam. When you rammed your foot down hard on the throttle, the shaft broke. You had the junk-yard boys install another shaft, but you forgot the two screws from the old one. Right now, they're down under the intake valves of Numbers 3 and 4."

"But I don't get it, even now," Glen sputtered. "The motor idles good. Why in the world should it only miss when it turns over fast?"

Gus Solves the Problem

"That's easy," Gus grinned. "The two screws are under the valves in the intake passages. When the engine's idling, there isn't enough suction to lift them up under the valve faces. But there is enough when the motor revs up. The screws are too large to pass completely under the valve heads and into the cylinders, but small enough to get under the valves and hold them open. When you idle down again the suction drops off and they fall back into the little pocket by the valve stems. Now, we'll just pull those two intake valves, remove the screws, and grind the valves—they're a bit rough."

Gus got busy, trying to ignore the appreciative eyes of Enid Bishop. There was a bigger reward in this job, he told himself, than the small bill Glen would pay up when the harvest was in. One of these fine days Gus Wilson was going to be invited to a wedding.

END

Next month: Gus saves the old homestead.

Deprived of Its Prey

A MOUNTAINEER, seeing his first motorcycle roaring along the road, raised his rifle and banged away.

"Did you git the varmint?" called his wife.

"Hit it but didn't kill it," came the answer.

"I can still hear it growling—but I sure made it turn that pore man loose."—L & N Magazine.